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***RESEARCH ARTICLE*.....**

Technical specifications and operation of *Van* net of Ratnagiri, Maharashtra

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ABSTRACT..... The present study encompasses the traditional fishing method of *Van* net practiced in Ratnagiri, Maharashtra. Temporary barrier locally known as *Van* net was a very simple method employed to trap the fish and operated at a depth of 3 to 4 m. The gear comprised of a long wall of netting supported by head rope, foot rope and wooden sticks or bamboo poles at regular intervals and operated in the area of tidal influence. PE multifilament twine having specification ranging from 210D×6×3 to 210D×12×3 and mesh size varying from 20 to 35 mm was commonly used for construction of main webbing. Total hung length and hung depth ranged from 200 to 355 m and 2 to 3.8 m, respectively. Number of meshes in length and depth ranged from 6428 to 13000 and 70 to 190, respectively. PP twisted rope of 1.5 to 2.5 mm diameter was used as head rope on upper edge and foot rope on lower edge. A total 25 to 45 wooden poles of 3.5 to 4.5 m height and 40 to 60 mm diameter were used to stretch the long wall of webbing horizontally and vertically as floats and sinkers were not used.

KEY WORDS..... Traditional fishing methods, Temporary barriers, *Van* net

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INTRODUCTION.....

The design and efficiency of traditional fishing gears draw strength from a practical knowledge accrued over several generations of human enterprise and they remain valid and effective even today. Thus, the present generation has still a lot to learn from this treasure of traditional knowledge (Remesan, 2009). The west coast of India is rich in tradition related to fisheries for two reasons. Firstly, the traditional fishing communities and the like, have a rich legacy of traditional knowledge and secondly, there exists a very wide continental shelf on the west coast enabling better harvesting of fish (Sharma *et al*., 2012).

The present study is an attempt to document the variations observed with respect to the technical specifications, material used, mode of operation, etc in the traditional fishing method of *Van* net practiced in Ratnagiri, Maharashtra.

RESEARCH METHODS.....

Ratnagiri (16°58'57" N latitude and 73°18'43" E longitude) an important fishing centre was selected as

the sampling area for the present study comprising of sampling stations namely Mirya, Bhatye and Kalbadevi. Structured interview schedule comprising of two major sections was formulated to collect data required for the present study. The first section dealt with the particulars of the traditional gear owners and second for the detail specifications of the respective traditional gears operated. The information included in the first section was recorded according to Sreekrishna and Shenoy (2001) whereas, information in the second section was collected according to George *et al*. (1983) and Akerman (1986). The technical specifications of the traditional gears and mode of operation were recorded. Collected data was statistically analyzed as required (Snedecor and Cochran,1967).

Table 1 : Technical specifications of *Van* net

Stations name	Mirya, Bhatye and Kalbadevi
Local name	*Van*
Specifications of main webbing	
Twine type	PE Multifilament
Twine diameter	210D×6×3 to 210D×12×3
Mesh size (mm)	20 to 35
Mean of mesh size (mm)	27 ± 0.18
Hung length (m)	200 to 355
Mean of hung length (m)	280.1 ± 3.11
Hung depth (m)	2 to 3.8
Mean hung depth (m)	3.08 ± 0.17
Number of meshes in depth	70 to 190
Mean meshes in depth	118 ± 12.21
Number of meshes in length	6428 to 13000
Mean meshes in length	9750 ± 741.95
Specifications of head rope / foot rope	
Material	PP twisted
Diameter (cm)	1.5 to 2.5
Mean (cm)	2.1 ± 0.11
Hung length (m)	200 to 355
Mean of hung length (m)	280.1 ± 3.11
Hung depth (m)	2 to 3.8
Mean of hung depth (m)	3.08 ± 0.17
Specifications of poles	
Material	Wood
No. of poles used	25 to 45
Diameter (mm)	40 to 60
Mean (mm)	47 ± 1.2
Height (m)	3.5 to 4.5
Mean (m)	3.7 ± 0.22
Distance between poles (m)	0.90 to 1.4
Mean distance between poles (m)	0.98 ± 0.22

RESEARCH FINDINGS AND ANALYSIS.....

Temporary barrier locally known as *Van* net is a very simple method employed to trap the fish operated from fish landing centers of Ratnagiri namely Mirya, Bhatye and Kalbadevi. The gear comprises of long wall of netting supported by head rope, foot rope and wooden sticks or bamboo poles at regular interval and operated in the area of tidal influence. Technical specifications of the *Van* net are stated in the Table 1 and its rigging, operation and stacking depicted in Plate 1, 2 and 3, respectively

For construction of main webbing of the *Van* net, PE multifilament twine having specification ranging from 210D×6×3 to 210D×12×3 was commonly used. Top and bottom selvedges were totally absent. The total hung length ranged from 200 to 355 m while the hung depth varied from 2 to 3.8 m. The mesh size varied from 20 to 35 mm. Number of meshes in length ranged from 6428

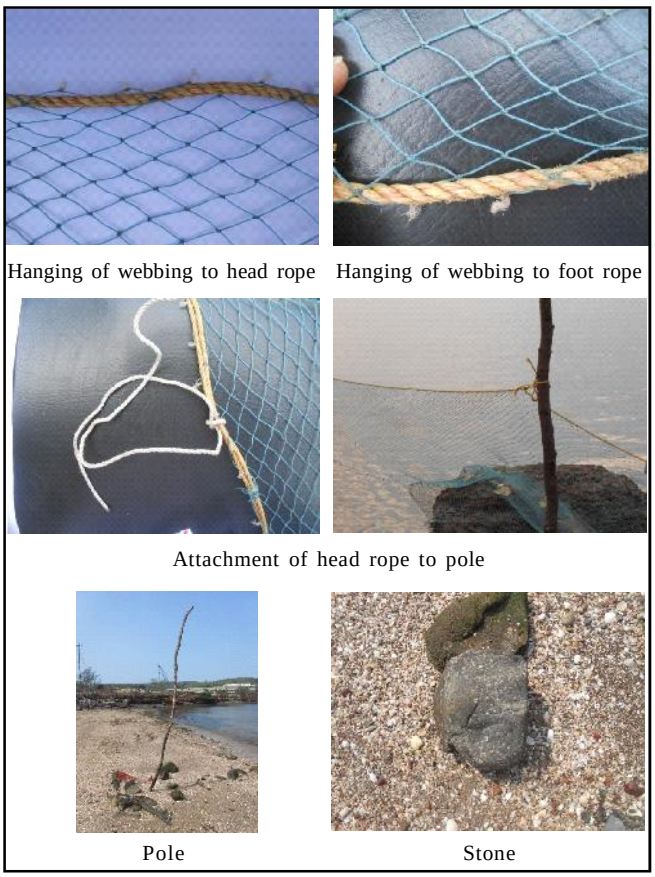

Plate 1 : Gear accessories and rigging of temporary barrier / *Van* net

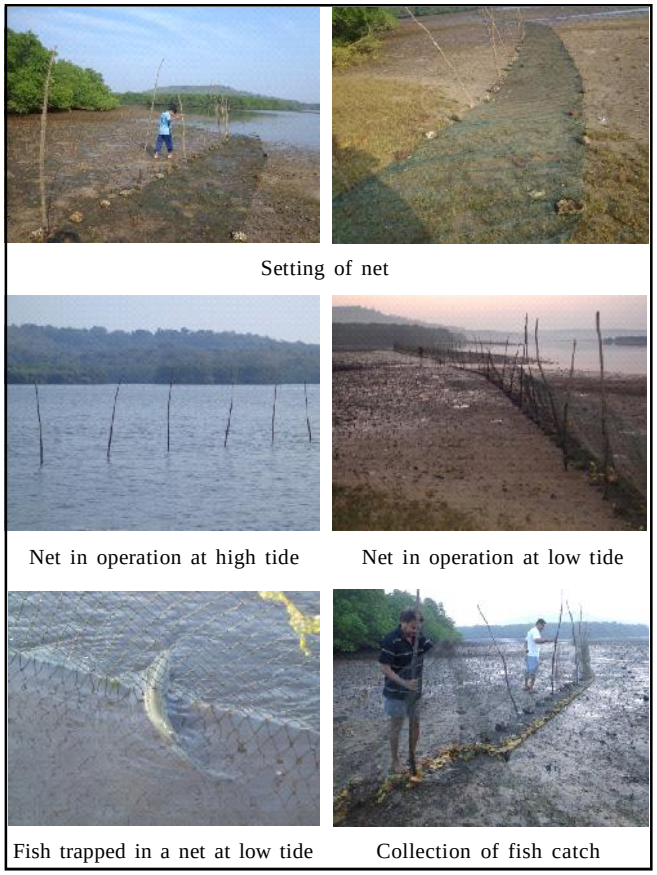

Plate 2 : Operation of temporary barrier / *Van* net

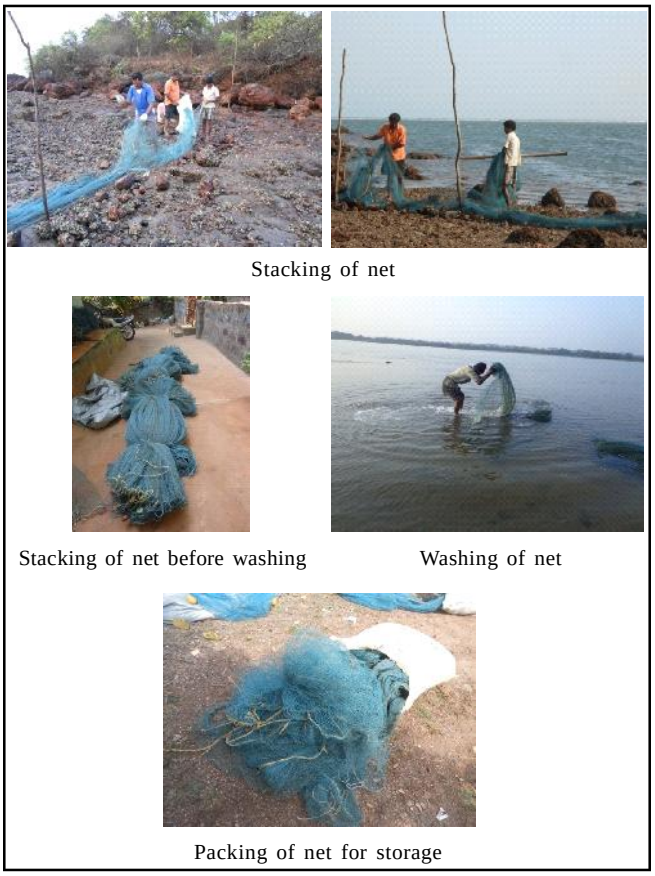

Plate 3: Stacking and storage of temporary barrier / *Van* net

to 13000 while in depth number of meshes ranged from 70 to 190. It was observed that, no hanging co-efficient was maintained for this type of gear. PP twisted rope of 1.5 to 2.5 mm diameter was used as head rope on upper edge and foot rope on lower edge. Mounting rope was not used. A total of 25 to 45 wooden poles of 3.5 to 4.5 m height and 40 to 60 mm diameter were used to stretch the long wall of webbing horizontally and vertically as floats and sinkers were not used.

The *Van* net comprised of single wall of webbing supported by head rope at upper edge and foot rope at lower edge and was mounted by passing the head rope through first row of meshes and foot rope through last row of meshes, horizontally. Poles were erected first and then foot rope was tied to the poles at regular intervals at the bottom by making a knot with the help of small piece of PP rope of non-specific size. Similarly, before the start of operation the head rope was also tied to the poles as like the foot rope, so that the net remained horizontally and vertically open.

The fishing operation by *Van* net was carried out by 2 to 3 fisherman without using any fishing craft. Depth of operation ranged from 3 to 4 m. The net was set in a semicircle form in the estuaries. The wooden poles were erected at 2 to 3 m distance on the bottom, starting from the shore in to the estuary in semicircle form. The net was kept spread on the bottom along the erected wooden poles during low tide. The stones were placed above the net to hold the net at the place. Bottom line of the net was tied to the base of the poles and other edge of the net was left free on the bottom. At the time of high tide, water starts proceeding towards shore and enters inside the area of net operation. When the high tide reached at its peak, 2-3 fishermen start tying the upper edge of the net on the erected wooden poles, above the water surface. This was done to trap the fishes inside the encircled area. At the onset of the low tide, the water starts receding through the net and fishes get entrapped in the net enclosure. After complete water runoff from the area, the fishes were collected manually by hand

picking.

Similar types of barrier nets were studied by Remesan and Ramachandran (2008) and Ray (2013) in the creeks and tidal inshore areas of the Sunder bans. Ray (2013) studied stake nets made from artificial twines locally known as *Charpata jal* used in the creeks and tidal inshore areas of the Sunder bans. Similar net called as *Khalpata jal* was used in the *Khari* area of Sunderbans. Remesan and Ramachandran (2008) reported that fish fences or screen barriers are the long leaders with converging screens, erected in shallow waters which lead the fishes into chambers, fixed at the end. This type of traps are fixed during high tide and removed during the next low tide and the fish actively swim up into the barrier.

Ray (2013) reported that the standard '*Charpata jal*' (stake nets) measured about 100 m in length and 4 m in width and had mesh size ranging from 6 to 16 mm. While for this type of gear in Ratnagiri netting of higher mesh size varying from 20 to 35 mm was used. Ray (2013) also observed that the '*Charpata jal*' consisted of number of rectangular pieces of artificial twines netting attached to bamboo/wood poles and is operated where wide stretches of mud flats are exposed at low tides. It was kept stationary with the help of stakes placed at regular intervals, without the use of floats or sinkers. Similar work related to the present investigation was also carried out by Mohapatra, 1955; Job and Pantelu, 1953; Nair; 1993, Remesan *et al.*, 2002 and Wishard, 1976.

Conclusion :

The documented information on the technical specifications and operation of the traditional fishing method of *Van* net practiced in Ratnagiri, Maharashtra would serve as a base line information for the technological modifications the method may undergo in the coming years.

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